

Undernutrition in mothers in rural Bangladesh: findings from the NSP indicate 'critical' food insecurity

Nearly one half of all mothers in rural Bangladesh are undernourished according to data collected by the Nutritional Surveillance Project (NSP). Surveys in 2000 showed that 45% of rural mothers had a low body mass index, a prevalence that is amongst the highest in recent surveys in Asia and indicates 'critical' food insecurity. This high prevalence is clear evidence that many mothers still do not get enough food to eat even though the country is nearly self-sufficient in rice production. Policies and programs to improve the quality and quantity of mothers' diets are essential, as a failure to address this problem will impede social and economic development in Bangladesh.

Undernutrition threatens both the health and survival of mothers because it increases their susceptibility to life-threatening diseases and their risk of dying, especially during childbirth. Undernourished mothers are often physically weak and are unable to perform income-earning activities and household work to their full potential. Mothers who are undernourished before or during pregnancy are more likely to give birth to underweight infants. These infants face a disadvantaged future: they may grow poorly during childhood, do less well at school, and have less productive working lives. In addition infant girls with low birth-weight are more likely to become undernourished mothers themselves, thereby perpetuating the cycle of undernutrition from one generation to the next.

As undernutrition impedes social and economic development, policies and programs are needed to address the factors responsible for mothers' poor nutritional status. In order to design appropriate interventions, key stakeholders in health and development need to understand how many mothers are affected, which mothers are at greatest risk, and why these mothers are undernourished.

Since February 2000, the Nutritional Surveillance Project (NSP) of Helen Keller International and the Institute of Public Health Nutrition has collected data every two months on the weight and height of mothers in Bangladesh who have preschool children. By dividing a mother's weight in kilograms by the square of height in meters (weight/height²), body mass index (BMI), an indicator of 'thinness' or undernutrition in adults, can be calculated.¹ An adult is considered undernourished or thin if their BMI is less than 18.5 kg/m². The NSP also collects information on a broad range of health, food consumption and socio-economic indicators, which allows maternal undernutrition to be linked with associated factors. This bulletin presents the findings of the NSP's first year of data on BMI.

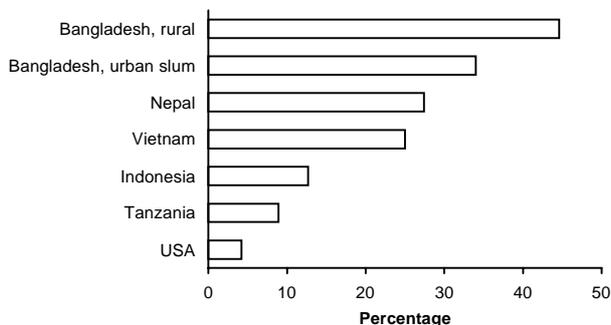
Status of mother's nutrition in Bangladesh

The data collected on over 57,000 women during the six NSP surveys in 2000 reveal that almost one half (45%) of rural mothers and one third (34%) of mothers in urban slums have a BMI less than 18.5 kg/m² and are undernourished. Using population projections from the 1991 census, an estimated 9 million women of childbearing age (15-44 years) are undernourished in rural Bangladesh compared with only 0.8 million women in a developed



country of similar size.^a Figure 1 shows that the prevalence of undernutrition in rural Bangladeshi mothers is much higher than in other Asian countries.

Figure 1. The percentage of undernourished (BMI <18.5 kg/m²) non-pregnant mothers in rural areas and urban slums in Bangladesh in 2000 and in other countries.²⁻⁴

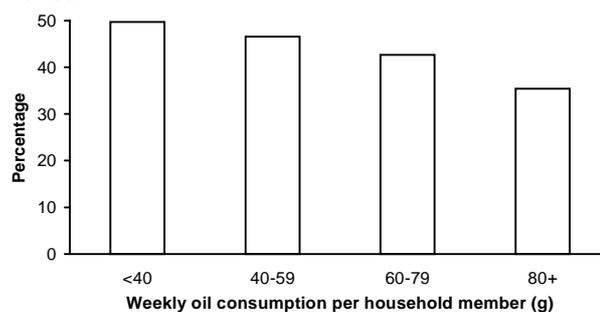


As undernutrition in adults is mostly due to a diet that is inadequate both in quality and quantity, BMI is considered to be an indicator of food insecurity.¹ According to criteria proposed by the World Health Organization, the prevalence of undernourished mothers in rural Bangladesh indicates a ‘critical’ food insecurity situation (prevalence of undernutrition $\geq 40\%$), and the prevalence in the urban slums indicates a ‘serious’ food insecurity situation (prevalence of undernutrition 20-39%).¹ In most parts of the world these grades of food insecurity only occur after emergencies that drastically reduce the availability or access to food, such as famines, wars and economic crises. There were no such events in Bangladesh in 2000, except for a flood in the southwest of the country that affected only two sub-districts in the NSP sample. So why are so many mothers undernourished?

The answer is that maternal malnutrition is a chronic problem in rural Bangladesh. Even though the country is self-sufficient in rice production, the diet of rural people is very low in energy and micronutrients because households do not have access to the resources they need to grow or purchase enough food. The typical diet is predominantly rice because people cannot afford other nutritious foods such as pulses, vegetables, fruits and animal products. Girls and women often eat last and least in the household due to the persistence of cultural practices that favour boys and men. Consequently, mothers do not eat enough food to meet their energy and micronutrient needs, particularly during pregnancy when these needs are greatest.

The amount of oil consumed by a household is an indicator of the quality of the household diet in Bangladesh. Figure 2 shows that the percentage of undernourished mothers in rural Bangladesh is lower in households that consume relatively more oil. Nutritional surveys during the past decade all confirm that mothers in Bangladesh have a low quality diet. NSP data from 2000 revealed that less than 15% of mothers ate *dal*, green leafy vegetables, eggs or yellow/orange fruit and vegetables on at least four days in the week prior to the surveys.⁵ The poor diet of mothers is reflected in the high prevalence of micronutrient deficiencies. Data from the 1997 National Vitamin A and Anemia Survey conducted by the NSP found that 2.7% of pregnant mothers had night blindness and 45% of non-pregnant mothers were anemic.^{6,7}

Figure 2. The percentage of undernourished (BMI <18.5 kg/m²) non-pregnant mothers by household oil consumption in rural Bangladesh in 2000 by weekly oil consumption per household member.^b

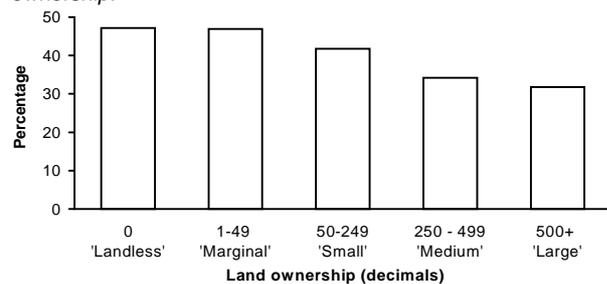


In rural Bangladesh the ownership of cultivable land is an important determinant of economic well-being and social status. Figure 3 shows that mothers in households with less than 50 decimals (200 m²) of land, an amount that is insufficient to economically support the household, are about 20% more likely to be undernourished than mothers in households with larger amounts of land. These ‘functionally landless households’, which account for two-thirds (67%) of households in rural Bangladesh, often depend on meager incomes earned through daily wage labor. Figure 4 shows that uneducated mothers are also more likely to be undernourished compared with mothers who received primary or secondary education. Education improves a mother’s opportunities for productive employment, increases her participation in household decisions, and enables her to have better access to information beneficial to her own health and nutrition.

^aThe estimate for Bangladesh assumes that the prevalence of undernutrition in women of childbearing age and mothers with preschool-aged children is the same. The estimate for developed countries uses the prevalence of undernutrition in the USA.

Although mothers in poor households should be prioritized for interventions to improve nutritional status, it is important that other mothers are not ignored. Figure 3 shows that 32% of mothers in households with relatively large amounts of land (≥ 500 decimals) are undernourished, a prevalence that is also unacceptably high. Maternal undernutrition is clearly very common, regardless of socio-economic status. However, the causes of undernutrition are likely to vary among mothers of

Figure 3. The percentage of undernourished (BMI < 18.5 kg/m²) non-pregnant mothers in rural Bangladesh in 2000 by land ownership.^b



different socio-economic status. The underlying cause of undernutrition in poor households is their lack of access to the resources they need to purchase or grow food, whilst undernutrition in wealthier households may be determined more by behavior. As well as eating less than their fair share of food, girls and women in Bangladesh are less likely to receive medical care when ill, which may cause longer periods of ill-health and exacerbate undernutrition.

How to improve mothers' nutrition

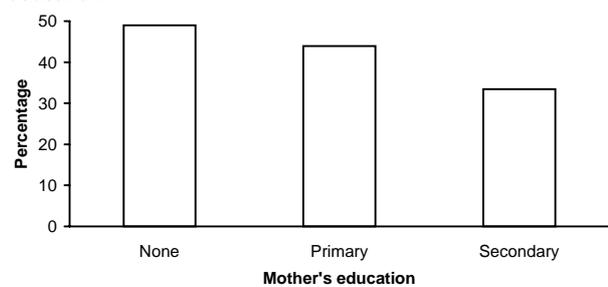
Policies and programs to improve mothers' food intake in Bangladesh are urgently needed as millions of mothers are undernourished.

Greater efforts should be made to increase availability and access to food by households and by women. Poor rural households need access to skills training for homestead gardening, income-generating activities and credit which will allow them to purchase or grow more food. Achieving these goals requires policies and programs sensitive to women's needs and constraints. For example, any efforts to increase women's income must be accompanied by measures to ensure that women have control over this income, because data from the NSP indicate that households spend more money on food when household decisions are made by a woman than by a man (forthcoming NSP Bulletin).

Food and agricultural policies can contribute to better nutritional status by increasing the availability of affordable and nutritious foods through appropriate food import, export and pricing policies, food fortification, better agricultural technologies, and incentives to farmers to diversify agricultural production. Rural development programs should increase opportunities for income generation for the growing number of functionally landless households.

Direct nutritional interventions such as supplementary feeding and food assistance programs need to be improved to better protect undernourished women. Adolescent mothers need special attention by these programs because they have not completed their own growth and have greater nutritional requirements than older mothers.⁸ The Bangladesh Integrated Nutrition Project (BINP) of the Government of Bangladesh provides undernourished pregnant women with supplementary food to promote fetal growth and the mother's own nutrition. The weight gain of all pregnant women is monitored, and they are given iron-folate supplements, nutrition education, and a high-dose vitamin A capsule up to six weeks after giving birth. The BINP also targets newly-wed couples to improve the nutritional status of adolescent girls and women before they become pregnant.

Figure 4. The percentage of undernourished (BMI < 18.5 kg/m²) non-pregnant mothers in rural Bangladesh in 2000 by mother's education.^b



Household decision-makers, including husbands and mother-in-laws, must be made aware of the extra nutritional needs of girls and women during adolescence, pregnancy and lactation; the benefits of delaying the first pregnancy until adolescent growth is complete; and the need to reduce physical work during pregnancy and lactation. It is important to take into consideration that any interventions to change behavior will only be put into practice by households that have the resources necessary to implement these changes, such as food and household labor.

^bThe relationship between undernutrition and household oil consumption, land ownership and mothers' education was significant ($p < 0.01$) after controlling for mothers' age, seasonality and indicators of household socio-economic status.

Conclusions

Almost one half of mothers in rural Bangladesh are undernourished. Maternal undernutrition is common in all sectors of the rural population, regardless of socio-economic status. This indicates that many millions of women lack sufficient access to food during their childbearing years and warrants immediate attention by key stakeholders in health and development.

Recommendations

- Policies and programs are needed to improve the diet of adolescent girls and women before and during pregnancy and during lactation. Government and development partners should focus on interventions to improve household food security such as homestead gardening and income-generating activities, food and agricultural policies, rural development programs, targeted food assistance, micronutrient supplementation, and food fortification.
- Awareness needs to be created, particularly among household decision-makers, to highlight the harmful effects of maternal undernutrition and the importance of good quality food and family planning for adolescent girls and women of childbearing age.
- The NSP can be a useful tool to monitor trends in mother's body mass index and thus provide information to design, monitor and evaluate policies and programs to reduce maternal undernutrition.

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